

**ABSTRACT**

Wide dynamic range operation is used to write a signal in a freeze-frame pixel into the memory twice, first after short integration and then after long integration. The wide dynamic range operation allows the intra-scene dynamic range of images to be extended by combining the image taken with a short exposure time with the image taken with a long exposure time. A freeze-frame pixel is based on voltage sharing between the photodetector PD and the analog memory. Thus, with wide dynamic range operation, the resulting voltage in the memory may be a linear superposition of the two signals representing a bright and a dark image after two operations of sampling.

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